

REPLY TO: 5200 Forest Insect & Disease Control

July 20, 1970



SUBJECT: Spruce Beetle Detection

TO: The Record

On July 7, 1970 an aerial detection survey was flown over portions of the Kenai National Moose Refuge and adjacent State and private lands. The purpose of the survey was to monitor a previously recorded infestation of spruce beetle, Dendroctonus obesus, that has been active for several years in the Pincher Creek-Point Possession area and to obtain an up to date picture of spruce beetle activity on the Refuge and adjacent lands.

The aerial survey, initiated at the request of the Refuge Manager, included most of the potentially commercial white spruce stands from Point Possession south to Kachemak Bay and west from Cook Inlet to the Chugach National Forest boundary. The southeastern corner of the Moose refuge and the areas encompassing the 1947 and 1969 forest fires were excluded.

Survey personnel included Dave Crosby and Don Curtis, Forest Service entomologists, and Bob Semel, a biologist from the Moose Refuge Headquarters located at Kenai, Alaska. The survey plane, a cessna 180, and the pilot, Bob Richie, were provided by the Fish and Wildlife Service.

The low level survey (500' - 1000') flown in a gridiron or contour pattern, depending on terrain, consisted of observing the location and estimating the number of trees with yellowish-red to cinnamon colored crowns. The discolored or "red-topped" crowns indicate a dying or recently killed spruce that is infested with one or more life stages of the spruce beetle. During the course of the reconnaissance survey the entomologists delineated on 1/4" to the mile trees/acre and which occurred over at least five acres. This criterion was tempered by such factors as age and size of stand, density of stocking, and management considerations.

The results of this survey indicate the following:

1. Spruce beetle mortality has significantly increased in the mature and overmature stands of white spruce on the Kenai Peninsula. A general zone of infestation extends almost unbroken from Point Possession to Clam Gulch, while two smaller outbreaks occur in the Deep Creek drainage near Ninilchik and on the northwest slopes of Bear Mountain in the vicinity of the 1969 Russian River Fire.

2.

2. Spruce beetle mortality on the western half of the Moose Refuge in heavy to extreme (25 or more dying trees/acre) in the Swanson Lake area north to Point Possession; along the Swanson River Road System from Grebe Lake; northwest to Curlew Lake; and South of Soldotna from Moose River to Shuntatalik Creek.
3. The present infestations on the Moose Refuge cover approximately 200,000 acres and contain in excess of one billion board feet of dead and dying spruce.
4. The infestations covering more than 60,000 acres on adjacent State and private lands are essentially extensions of the same outbreaks occurring from Point Possession to Salmatof and from Soldotna south to Clam Gulch. The one exception being the isolated infestation occurring near Ninilchik.
5. These outbreaks occur, for the most part, in areas where man-related activities such as road building, general land clearing, habitat improvement and petroleum exploration have been accelerated during the last decade. Presumably the large populations which developed in the downed material emerged and attacked adjacent green standing trees.

Severe drought conditions, resulting in stress on mature and overmature stands, have provided the necessary catalyst for numerous minor outbreaks to erupt into the present major epidemic.

6. The Pincher Creek - Point Possession outbreak has expanded from a minor outbreak of less than 100 acres into a major epidemic covering more than four townships in a period of six years.
7. The Bear Mountain outbreak presents a potential hazard to the aesthetically valuable white spruce in the Russian River area located on both the Moose Refuge and the Kenai District of the Chugach National Forest.

Fire line construction debris, fire-damaged green trees within the perimeter of the 1969 Russian River Fire will be examined by I&D.C. entomologists in August 1970 to determine if a population buildup is occurring. The results of this biological evaluation will determine if control is needed. At that time both the Moose Range and the Chugach Forest will be sent a report of findings and recommendations for possible control.

8. The attached map shows in some detail the distribution of spruce beetle infestations on the Kenai National Moose Refuge and adjacent lands.

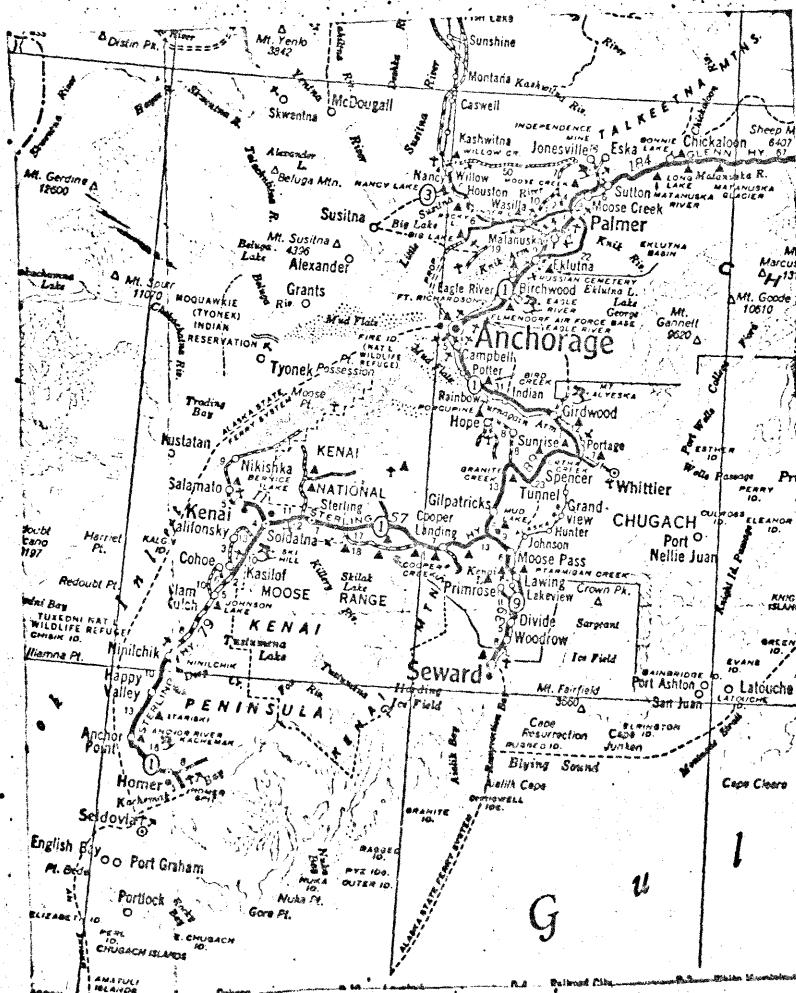
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These outbreaks are expected to continue. Tree killing will intensify in areas of light to moderate infestation and will probably extend into adjacent stands of overmature spruce. Unless climatic conditions change abruptly, a majority of the mature and overmature white spruce will be harvested by this insect.

*Donald Curtis*  
DONALD J. CURTIS

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Entomologist

**Enclosure**



7/29/70

NOTICE FOR LAND OWNERS  
KENAI--SOLDOTNA--HOMER AREA

A major bark beetle epidemic has developed during the past few years spruce trees in the area from Point Possession to Clam Gulch on the West Kenai. An estimated 1 billion board feet is killed and it is expected that during the next few years these insects will kill the major portion of the spruce trees in the area which are eight inches in diameter and larger. Unfortunately, it is seldom possible to save a tree after it has been heavily attacked.

If your spruce show signs of "fading" and browning, attack could be under way. Small brownish mounds of pitch and chewed bark deposited on the tree stem indicate beetle activity underneath it. Underneath that bark, a small brown beetle about the size of a small rice grain is eating.

Control measures are difficult and expensive. Attacked trees can be cut down and the bark stripped to expose the wood underneath. This dries out and kills the beetle larva. Another way is to fell and burn all of the tree boughs included. A third way is one in which the chemical, ethylene-di-bromide is mixed in diesel oil and sprayed on the affected tree trunks. It will penetrate and kill the beetles. A mixture one gallon of EDB to fifteen gallons of fuel oil or diesel is the proper mixture. A word of caution: EDB IS EXTREMELY TOXIC AND CAN CAUSE SEVERE SKIN RASH, INTERNAL DISORDERS, AND THE LIKE. IT SHOULD ONLY BE APPLIED BY PEOPLE FAMILIAR WITH THE PROCESS. Also, the tree must be felled to get at the stem portions.

The wood so treated holds the toxic chemicals and should not be used as fuel or burned because the chemicals will be given off in the smoke.

Information on the epidemic and methods used to identify the beetle attack, control measures and the like, are available at Homer from the offices of the Cooperative Extension Service, The Soil Conservation Service, The ASCS, The State Forester in Anchorage, and the Forest Service in Seward. A general map of the affected area is shown by the cross hatch:

*H. State Forester*